

Boston Collegiate Charter School
9th Grade Physics

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| | <u>August-December 2011</u> | <u>December 2011-June 2012</u> |
| Teacher: | Steven Salo | Sarah Morland |
| Phone number: | (617) 265-1172 ext.213 Best time to call: after 4pm | (617) 265-1172 ext.213 Best time to call: TBA |
| Email: | ssalo@bostoncollegiate.org | smorland@bostoncollegiate.org |
| Tutoring: | 3:00-4:00pm Tuesdays and Thursdays | TBA |

Course Overview

This course will give students a foundation in conceptual physics knowledge and skills. Topics covered will include scientific thought, forces and Newtonian laws of motion, energy, work, electricity, magnetism, and waves. Students will explore the physics curriculum through daily activities and demonstrations, labs, large and small group discussions, and lectures. Students will demonstrate their mastery of these concepts with a culminating paper car design project. Students will also be required to take the physics MCAS in June of 2012.

Blog

Ms. Leavitt also teaches two sections of 9th grade Physics and maintains a blog. PowerPoints for all lessons, as well as a calendar of major assignments will be posted regularly on her blog:
www.sciencrulesmylife.blogspot.com

Special Materials/Supplies

- Students MUST have a **scientific calculator** for physics class; a graphing calculator, such as a TI 83, 84, or 89, is ideal.
- Students should have a binder with paper or a notebook to keep notes and handouts in.
- Students should have one pocket folder to keep tests, quizzes and lab reports in.
- Students should bring both a pencil and blue/black pen to class each day.

Assessment

Students will be assessed through homework, labs, class work, quizzes and tests, as well as participation and completion of projects. Students will be responsible for taking notes, practicing problems, and completing lab reports and reading assignments. Students are expected to come to class prepared, organized and ready to work each and every day.

Grading Policy

For each quarter, the grading breakdown is as follows:

- Homework / Class work 15%
- Unit Tests (2 per quarter) 35%
- Quizzes (roughly 2 per month) 20%
- Labs / Projects 30%

- It is the **STUDENT'S** responsibility to ensure that missed work is rescheduled with Ms. Morland or Mr. Salo.

General Syllabus and Big Ideas

Scientific Thought: The scientific method is a process for experimentation that is used to explore observations and answer questions.

- Scientific Thinking
- The Scientific Method

Motion and Forces: When two objects interact with each other, by direct contact or at a distance, all three of Newton's Laws describe and explain that interaction.

- Inertia and Friction
- Newton's Laws
- The Distance Equation
- Free Body Diagrams
- Momentum
- Circular Motion
- Gravity

Energy and Work: Energy is transferred between objects during interactions and is frequently transformed from one type to another. The total amount of energy remains constant in closed systems.

- Work
- Simple Machines
- Mechanical Energy
- Thermal Energy
- Heat Capacity

Electricity and Magnetism: All objects are composed of electrical charges. The electric and magnetic forces are the result of the strength and motion of charges. Most interactions in everyday life (other than gravity) are the result of electric and magnetic forces.

- Electric Charge
- Electrostatics
- Circuits
- Ohm's Law
- Magnetism
- Electromagnetism

Waves: Mechanical waves are vibrations in a medium that move from source to receiver, carrying energy. Electromagnetic waves transfer energy and information from place to place without a material medium.

- Simple Harmonic Motion
- Wave Properties
- Sound Waves
- Electromagnetic Spectrum
- Behavior of Light

Please tear off this last page and hand in with your Physics homework.

We have reviewed the 9th grade Physics Course Description.

Student Name: _____

Student Signature: _____ Date: _____

Parent Signature: _____ Date: _____

Do you have a computer at home? _____ Do you have internet access? _____

What is your email address (if you don't mind sharing it)? _____

Questions/Comments: